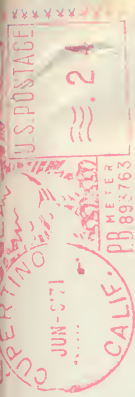


10435 N. Tantau Avenue
Cupertino, California 95014



Information Storage Systems

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(408) 257-6220 TWX (910) 338-0280

TO:

Mr. T. Nelson

Systems Consultant

Post Office Box 3

Schooleys Mountain, New Jersey 07870

ISS FORM 0444

June 8, 1971

Mr. T. Nelson
Systems Consultant
Post Office Box 3
Schooleys Mountain, New Jersey 07870

Dear Mr. Nelson:

Thank you very much for your inquiry into ENVIRON/1. ENVIRON/1 is the first of the 4thWare Family of products from ISS. It is a high-performance, commercial, terminal-oriented, operating system for the real-time environment. It is the real-time control program for your on-line applications, and can run under either DOS or OS on System/360 or System/370.

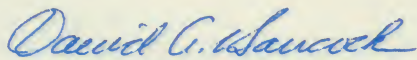
Primary components of the system are:

- commercial real-time supervisor
- complete set of access methods for direct, index sequential and sequential processing
- ISS TEBOL compiler
- on-line linkage editor
- system measurement
- checkpoint facilities
- three levels of restart facilities
- audit trail

This combination of unique features in ENVIRON/1 provides a high performance environment for efficient computer usage and data management in both teleprocessing and batch operations.

Seminars providing an in-depth explanation of ENVIRON/1 will be conducted in major cities throughout the United States. If you would like to attend, please return the card attached to the brochure and we will notify you as to the time and place. If you require additional information prior to the seminar, please feel free to contact me or our New York Sales Office at (212) 869-1656.

Sincerely,



David A. Hancock
Manager
Software Marketing

DAH:rvm
Enclosure

ISS

A large, stylized number '4' composed of two overlapping shapes: a light blue one in front and a dark blue/black one behind it. The '4' is positioned on the left side of the page.

4THWARE

a new generation
of software
products

environ/1

4THWARE... a new generation of manufactured software products from ISS

ENVIRON/1, the first of the 4THWARE Products, is an operating system designed to solve the major problems in terminal oriented real time systems. It is a logical extension of System/360/370 operating systems and operates with DOS or OS.

- High Performance
- Improved DASD Access Methods
- Instant Real Time Technology
- Automatic System Expansion
- Fast System Restart After Error Condition
- Data Integrity
- High Level Language Facility
- Storage Device and Terminal Independence
- Maintenance Support
- Rapid File Maintenance
- System Measurement

High performance

ENVIRON/1 employs several advanced techniques in addition to multitasking which deliver performance far in excess of most other systems. It can process most real time

applications in a CPU and core which is a size smaller than is currently required. For example, in an installation with a work load that requires a System/360/Model 50 with 512K bytes of storage, ENVIRON/1 can produce the same job throughput on a Model 40 with 256K bytes of storage, achieving maximum utilization of system resources.

The graph comparing ENVIRON/1 performance with conventional single and multi-thread systems illustrates how quickly response time increases as the system nears capacity. Notice the capacity and response improvement attained by ENVIRON/1.

Improved DASD access methods

To realize the full potential of the high performance supervisor, ISS developed a Compressed Index Sequential Access Method to provide the necessary new function and high performance. In addition, ISS developed a sequential access method for sequential processing which is from 3 to 40 times faster than IBM's sequential access methods.

Instant real time technology

High development costs are eliminated for systems programming, and programming resources are directed at applications. In one week ISS can teach System/360/370 qualified programmers the programming techniques required for ENVIRON/1.

Automatic system expansion

ENVIRON/1 delivers high performance, without re-programming, over the entire model range of IBM System/360/370 CPU's from Model 25 with a 32K partition up through Model 195 with thousands of terminals. A user can also convert the on-line system from DOS to OS, no re-programming required, not even recompiling if object decks are available.

Fast system restart after error condition

ENVIRON/1 provides three levels of restart. In the event of an application program check, the supervisor automatically records the application program and associated data, notifies the terminal and continues processing. If the control program fails, no operator intervention is required; the system performs a complete restart automatically. After a total system failure the operator re-IPL's the system from a non-SYSRES device and the system restarts automatically in about 30 seconds.

Data integrity

A complete Audit Trail, Check Point and Recovery capability are provided automatically, insuring integrity of the user's data.

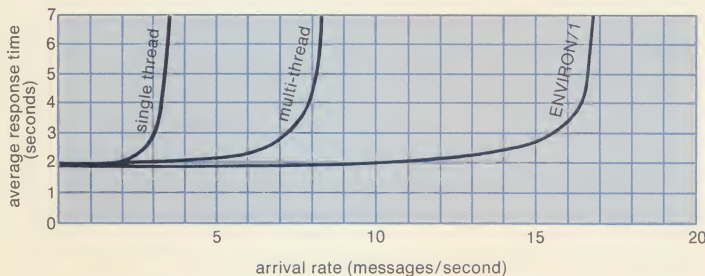
High level language

In addition to a complete set of Assembler Language macros, ISS developed a Terminal Business Oriented Language (TEBOL) to allow the user to take advantage of COBOL's programming efficiency in writing on-line application programs.

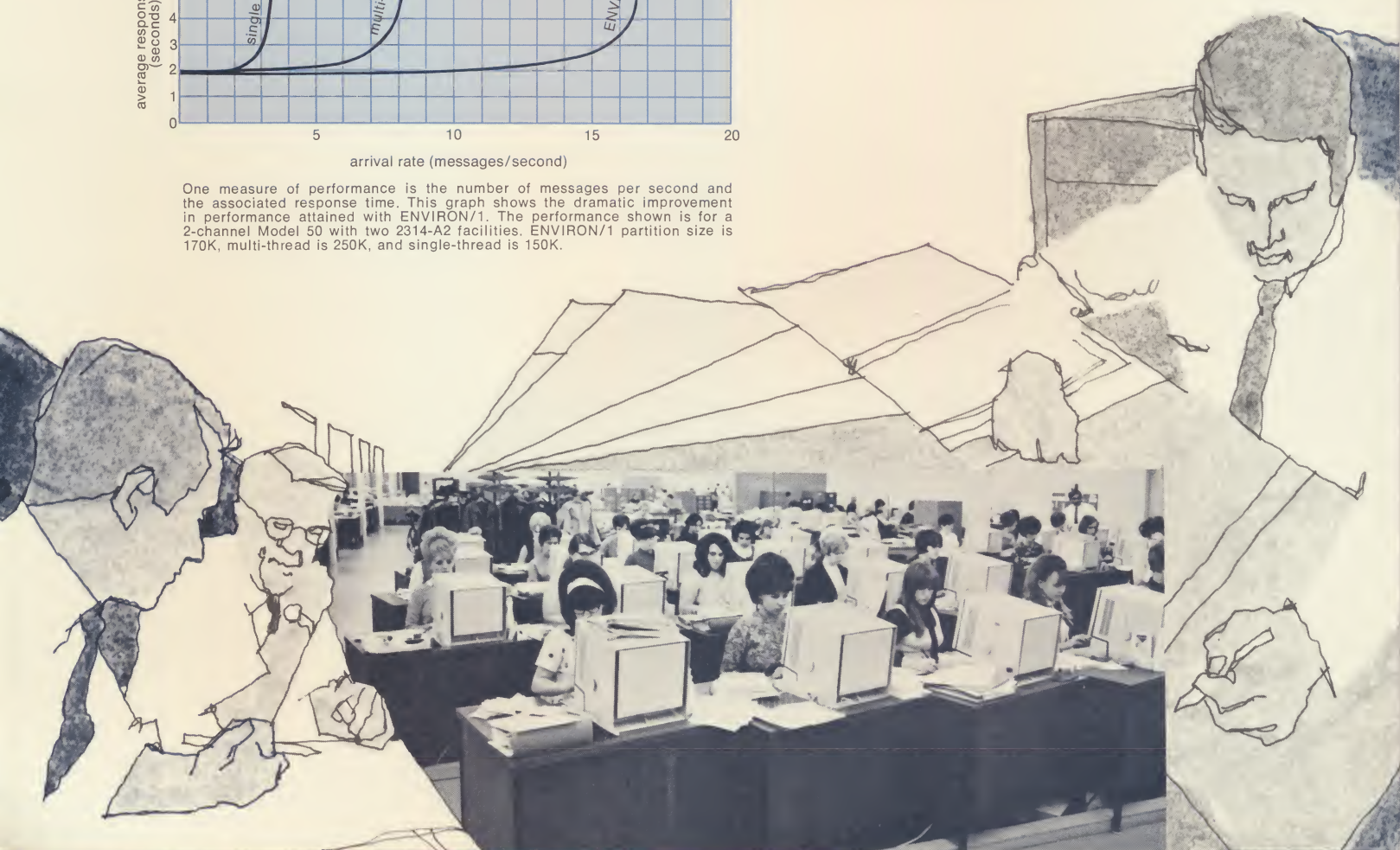
Storage device independence

Virtual storage addressability allows the programmer to write programs without regard for the physical attributes of core size and storage devices. Thus he addresses all programs and data files as virtual extensions of core memory. This allows a terminal and storage device mix appropriate to any given application and permits system expansion (without re-programming) as new devices become available.

As an example, ENVIRON/1 is able to fully support the Rotational Position Sensing (RPS) feature on disk storage devices such as the IBM 3330.



One measure of performance is the number of messages per second and the associated response time. This graph shows the dramatic improvement in performance attained with ENVIRON/1. The performance shown is for a 2-channel Model 50 with two 2314-A2 facilities. ENVIRON/1 partition size is 170K, multi-thread is 250K, and single-thread is 150K.



Maintenance support

ISS takes complete responsibility for maintenance of ENVIRON/1 programs including support of new releases, thereby virtually eliminating an otherwise significant expenditure. ISS systems engineers are supported by a group of skilled 4THWARE engineers.

Rapid file maintenance

ENVIRON/1's Compressed Index Sequential Access Method (CISAM) can insert 500 250-byte records between two keys on a 2314 ISAM file in 1/20th of the time of IBM's ISAM. ISS's Sequential Access Method can dump a full 2314 pack for file backup in *two minutes*. That is several times faster than IBM's SAM.

System measurement

ENVIRON/1 compiles and maintains statistics on various aspects of hardware/software system performance, which makes it possible for the system user to evaluate

current system performance, determine system "bottlenecks" and peak-load capacity and plan well in advance for future system growth.

LICENSE TO USE ENVIRON/1 INCLUDES

System Programs

Real Time Execution for Application Support

- Real Time partition supervisor
- Real time direct access method
- Real time compressed index sequential access method
- Real time sequential access method
- Check point/Restart/Audit trail
- Program loader
- System statistics
- Real time memory print
- Sign-on facility

Batch Execution for Real Time Support

- Linkage Editor
- Real time library maintenance

- High level language compiler (TEBOL)
- System Red line driver (System Measurement)
- Log print

Batch Execution for Application Support

- Batch direct access method
- Batch compressed index sequential access method
- Batch sequential access method
- Dump/restore

Miscellaneous System Routines

Documentation

- Concepts and Facilities Manual
- Programmers Reference Manual (including a complete set of assembler language and TEBOL language specifications)

One Week Training Seminar

Systems Engineering Support for Installation and Maintenance and 4THWARE Engineering Back-Up From ISS.



Implementation requirements

ENVIRON/1 was designed for fast, easy implementation. The only education requirement is a one-week training seminar for programmers and management to be conducted at the user's installation. Together with ISS system engineers, the user will participate in developing an implementation plan and schedule.

THE COMPANY

ISS was established as a company dedicated to the improvement of computer systems. Since 1967 a rapid series of developments has made ISS a major factor in the computer community. The founders recognized that the effectiveness of computers was highly dependent on the rate at which large amounts of data could be transferred, stored, and retrieved. They further recognized that maximum efficiency could not be obtained without proper data management. By placing its emphasis on supporting peripherals and new techniques of data management, ISS has developed a new approach to the total *environment* in which the computer operates.

By late 1968, ISS had designed and constructed a 33,000-square-foot facility for the manufacture and production of computer peripheral equipment. Its initial hardware product line was in the disk storage field. Building towards compatibility with existing equipment, ISS units not only improved reliability, but truly revised standards of performance in disk drives by meaningful reductions in access time. In early 1970, a second facility was completed, giving ISS over 100,000 square feet of manufacturing, engineering and administrative space.

ISS approached the industry by looking at the entire computer system and its operation, with management of data a prime con-

sideration. Therefore, coincident with the development of the hardware peripheral equipment was the development of an ability in manufactured software products.

SOFTWARE

The unique orientation of the ISS Software products group is due to the recognition of two important considerations by the ISS personnel involved. First, for the decades ahead, the important emphasis in computer systems would be placed in commercial terminal environments, and no company or systems house was providing for this development. Most of the quality computer developments to date had been designed for the engineering, scientific or time-sharing markets; the commercial computer environments deserved and, in fact, demanded, far better software and systems support.

Secondly, because of extensive experience in the actual development, design, and operation of terminal oriented systems, ISS recognized the potential for general solutions to the major problems of the real-time environment.

The *significantly new* software developments complemented and enhanced the hardware achievements of the company. The result has been a Real-Time Operating System that is radically new and that offers a solution to the general problems faced by computer users of all types.

ISS PEOPLE

In the decade of the 60's the developers of ISS software products acquired experience that is unmatched by any other company in existence. These key personnel have developed several real-time operating systems for major corporations in the United States using equipment from the large computer manufacturers. They were involved in the

preplanning for the 1970's and 1980's for major computer developments. They have some of the strongest overall systems architecture capability and knowledge that is available from any software manufacturer. Their average experience in solution of computer environment problems exceeds nine years, with over seven years in real-time systems alone.

The capabilities, the experience, and the philosophy are reflected in their first product . . . ENVIRON/1.



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Attention: Software Products

- High Performance
- Improved DASD Access Methods
- Instant Real Time Technology
- Automatic System Expansion
- Fast System Restart After Error Condition



Name _____

Title _____

Company _____

Company Address _____

City _____ State _____ Zip _____

1. Do you now have a terminal oriented system? _____

2. Do you plan to install a terminal oriented system? _____

When? _____

3. CPU manufacture? _____ Model? _____ Core size? _____

OS _____ DOS _____

4. Do you now process in real-time? _____

5. Do you plan to process in real-time? _____

6. Do you plan to expand your present system? _____

7. Would you like to attend a seminar in your area on ENVIRON/1? _____

8. Do you have any other remarks or requests? _____

environ/1



THE COMPUTER ENVIRONMENT & WHY IT'S IMPORTANT

The environment in which any computer operates includes a great many elements: CPU's; terminals; storage devices; peripherals; software; and people. Two kinds of problems face the user with regard to his computer system—application problems and environmental problems. The user is well-acquainted with the application problems and is well-equipped to solve them. However, acting as roadblocks to the successful implementation of the applications are many environmental problems: configuration expansion and changes, obtaining system efficiency, accommodating advancements in manufacturer's software, system availability, data availability, system measurement, and a host of others. Over half of the energy of every data processing installation is expended in solving problems that have nothing to do with the company's business.

ISS engineered ENVIRON/1 to minimize the environmental considerations and to free the users' energy for solution of his application problems. ENVIRON/1 is not just another program. It's a new concept in software systems. It's the first of a family of dramatic advances in computer support.

ISS SOFTWARE PRODUCT PHILOSOPHY

The objective in designing ENVIRON/1 was to solve first the environmental problem of the computer installation, making it easy for users to have a real-time system. However, ISS has always been concerned with what is required to train people on a system. Therefore, the user does not require large investments in education, technology, and extremely high-cost, experienced people in order to *implement* a real-time system. ENVIRON/1 offers a system which is easy to teach and allows your installation to be made by the same personnel who have installed your present System/360, without extensive retraining or further education.

EVALUATING SOFTWARE

The purchase of your next software system will probably be your most important computer management decision. To help guide the user in the evaluation of available software, ISS offers the following points of consideration that should be evaluated before any decision on a software package is made.

- I. The Manufacturer
 - a. The corporation behind the software.
 - b. Man-years of experience.
 - c. Capabilities with regard to available equipment.
 - d. Language familiarity.
- II. The Buyer
 - a. Equipment configurations.
 - b. Future plans.
 - c. Size of staff (operators, analysts, programmers, etc.)
 - d. Sophistication level of that staff.
 - e. Languages used and training capability.
- III. The Package
 - a. Price structure.
 - b. Minimum equipment configuration required.
 - c. Language used.
 - d. Throughput of the system.
 - e. Flexibility of the system.
 - f. Growth potential of the system.
 - g. Ease of use of the system.
 - h. Staff education required.
 - i. Restart capability.
 - j. Data integrity provisions.



Information Storage Systems, Inc.

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